

IN THE CLAIMS

Please amend the claims to read as follows (support for this amendment is found in Appendix B):

CLAIMS

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5 1. In a data processing system having a plurality of processors coupled via a system memory bus and having a first processor of said plurality of processors with a level one cache memory responsively coupled to a level two cache memory which is responsively coupled to a level three memory, said level two cache memory having cache storage and tag storage and having a circuit for SNOOPing said system memory bus , the improvement comprising:

10 A first dedicated path between said system bus and said cache storage and a second dedicated path between said system memory bus and said tag storage.

15 2. A data processing system according to claim 1 further comprising control logic responsively coupled to said cache storage and said tag storage which provides the highest priority for said SNOOPing.

3. A data processing system according to claim 2 wherein said level two cache memory further comprises:

A duplicate tag memory.

20 4. A data processing system according to claim 3 wherein said plurality of processors further comprises

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A plurality of instruction processors,

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5. A data processing system according to claim 4 wherein said level three memory further comprises:

A level three cache memory.

5 6. A data processing system comprising:

a. A plurality of processors including a first processor having a level one cache memory;

b. A level two cache memory having a data memory and a tag memory responsively coupled to said level one cache memory;

10 c. A system memory bus responsively coupled to said plurality of processors and responsively coupled to said data memory and responsively coupled to said tag memory; and

d. A SNOOP request placed on said system memory bus and responsively coupled to said tag memory.

15 7. A data processing system according to claim 6 further comprising:

A data request transferred from said level one cache memory to said level two cache memory.

20 8. A data processing system according to claim 7 further comprising:

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Control logic within said level two cache memory which provides priority of said SNOOP request over said data request.

9. A data processing system according to claim 8 further comprising:

5 a. A level one tag memory located within said level one cache memory; and

b. A duplicate tag memory within said level two cache memory which maintains a duplicate of information within said level one tag memory.

10 10. A data processing system according to claim 9 wherein said SNOOP request is responsively coupled to said duplicate tag memory.

15 11. A method of maintaining validity of data within a level one cache memory of a processor having a level one tag memory responsively coupled to a level two cache memory having a tag memory and a data memory wherein said level two cache memory is responsively coupled to a system memory bus comprising:

a. Formulating a SNOOP request;

20 b. Presenting said SNOOP request on said system memory bus to said level two cache memory;

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c. Routing said SNOOP request directly to said tag memory;
and

d. Processing said SNOOP request.

12. A method according to claim 11 further comprising:

5 a. Presenting a data request from said level one cache memory
to said level two cache memory; and

b. Granting priority to said SNOOP request over said data
request.

13. A method according to claim 12 further comprising:

10 Maintaining a duplicate copy of said level one tag memory
within a duplicate tag memory within said level two cache memory.

14. A method according to claim 13 further comprising:

Routing said SNOOP request to said duplicate tag memory.

15. A method according to claim 14 further comprising:

15 Processing said SNOOP request regarding said duplicate tag
memory.

16. An apparatus comprising:

a. Means for executing program instructions;

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5 b. Means responsively coupled to said executing means for level one caching data;

c. Means responsively coupled to said executing means and said level one caching means for requesting a data element if said executing means requires requesting of said data element and said level one caching means does not contain said data element;

d. Means responsively coupled to said requesting means for level two caching;

10 e. Means located within said level two caching means for storing level two caching data;

f. Means located within said level two caching means for maintaining level two tags; and

g. Means responsively coupled to said maintaining means for directly SNOOPing said level two tags.

15 17. An apparatus according to claim 16 further comprising:

a. Means responsively coupled to said storing means and said maintaining means for granting priority to a SNOOP request over said data element request.

18. An apparatus according to claim 17 further comprising:

20 a. Means responsively coupled to said level two caching means for bussing system memory data;

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b. Means responsively coupled to said bussing means for interfacing said bussing means directly to said storing means; and

c. Means responsively coupled to said bussing means for interfacing said bussing means directly to said maintaining means.

5 19. An apparatus according to claim 18 further comprising:

a. Means located within said level one caching means for recording level one tags; and

10 b. Means located within said level two caching means and responsively coupled to said recording means for duplicating said level one tags.

20. An apparatus according to claim 16 further comprising:

a. Means responsively coupled to said bussing means and said duplicating means for SNOOPing said duplicating means.
